

Claims

1. An article comprising a surface coated with a monomer obtainable by a method comprising the steps of
 - providing a pulsating plasma of low density, said plasma being produced by subjecting a gas to an electric field, the electric field being generated by means of at least two separate electrode systems, at least one of the two separate electrode systems comprising at least two electrodes, wherein said at least two electrode systems are being power supplied from separate generators of the same frequency and of voltage variations shifted in phase relative to each other so that a rest period of no significant potential difference exists between said shifted phases,
 - adding the monomer to said pulsating plasma, and
 - exposing the surface to said monomer containing pulsating plasma.
2. An article according to claim 1, wherein the monomer is acrylic acid, vinyl pyrrolidon, or ethylcyanoacrylate.
3. An article according to claim 1, wherein at least one of the separate generators is in the form of a transformer connected directly to either one of the three phases of the mains and zero, or between two of the phases.
4. An article according to claim 1, wherein the electrical field is generated by means of at least two separate electrode systems, the voltage variation of the generators being shifted in phase by about 180° relative to each other.
5. An article according to claim 1, wherein the phase shift between two phases is Φ wherein $0.5 < \Phi + I \cdot \pi < 2.5$ and I is a positive integer.
6. An article according to claim 1, wherein the electrodes are placed along a cylindrical body, which in turn is encased in a tube, the plasma being generated between the electrodes and the interior of the tube.
7. An article according to claim 6, wherein the electrical field is generated by means of at least three separate electrode systems.
8. An article according to claim 1, wherein the voltage variation of the generators are shifted asymmetrically relative to each other.
9. An article according to claim 1, wherein the electrical fields are generated by means of two separate electrode systems, each of the systems comprising at least two electrodes.
10. An article according to claim 9, wherein said electrodes of the two separate electrode systems are being connected alternately to shifted phases.
11. An article according to claim 9, wherein said electrodes of the electrode systems are placed alternately to surround a space wherein the plasma is generated.

12. An article according to claim 1, wherein the voltage amplitude used at one of the phases is higher than those voltage amplitudes used at other phases.

13. An article according to claim 1, wherein the method further comprises generation of an additional process selected from a group consisting of a cleaning process and a sputtering process, wherein said additional process is conducted in the plasma, and wherein a further cleaning/sputtering electrode system operated at an electron or power density used for cleaning undesirable material or for sputtering a metal to a blank is placed in the plasma.

14. An article comprising a surface coated with a monomer obtainable by a method comprising the steps of

providing a pulsating plasma of low density, said plasma being produced by subjecting a gas to an electric field, the electric field being generated by means of at least two separate electrode systems, at least one of the two separate electrode systems comprising at least two electrodes, wherein said at least two electrode systems are being power supplied from separate generators of the same frequency and of voltage variations shifted in phase relative to each other so that a rest period of no significant potential difference exists between said shifted phases, wherein the monomer is acrylic acid, vinyl pyrrolidon, or ethylcyanoacrylate.